



Our ref: KON-1822

Client's ref: P6220-001-0000

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

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In re Application of: S. NAKAJIMA et al: Art Unit: 1752

Serial No. : 10/658,253 :
Examined : September 9, 2003 : Examiner: T. Chea
Title : SILVER SALT PHOTOTHERMO- :
GRAPHIC DRY IMAGING :
MATERIAL :

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DECLARATION

Commissioner for Patents
P.O. Box 1450
Alexandria, VA 22313-1450

S i r:

I, Akihisa Nakajima, hereby declare and say as follows:

1. I presented the Declaration dated August 17, 2005 in this application.

2. I am aware that the Examiner is continuing to reject this application based on Sampei (US 6,190,854). Tests have been performed and are reported herein to demonstrate the superiority of the claimed photothermographic material having a copolymer of Formula (1) produced by a pearl polymerization method compared to the teachings of Sampei. These tests were performed by myself or under my direct supervision and control.
3. Photothermographic material Sample 1 appearing in Table 2 on page 77 of the application was prepared as described beginning on page 52. Sample 1 contained copolymer PA-1 produced by the pearl polymerization method described on page 52 of the application. Copolymer PA-1 has four fluorine atoms in the " $O-(R^2)-(CF_2)_nX$ " portion of Formula (1) as shown in Table (Sup) attached to this Declaration.
4. Photothermographic material Samples 19-23 were prepared in the same manner as Sample 1, except that copolymer PA-1 was respectively replaced by copolymers PA-18, PA-19, PA-20, PA-21 and PA-22 as shown in Table (Sup). Copolymers PA-18, PA-19, PA-20, PA-21 and PA-22 were obtained as follows:
 - PA-18: compound M-5210 of PA-1 on page 52 of the application was replaced with M-1110 on page 10

- PA-19: compound M-5210 of PA-1 on page 52 of the application was replaced with M-1420 on page 10
- PA-20: compound M-5210 of PA-1 on page 52 of the application was replaced with M-1433 on page 11
- PA-21: compound M-5210 of PA-1 on page 52 of the application was replaced with M-5410 on page 11
- PA-22: compound M-5210 of PA-1 on page 52 of the application was replaced with M-7310 on page 11

As shown in the Table attached (Sup), copolymer PA-18 has three fluorine atoms in the "O-(R²)-(CF₂)_nX" portion of Formula (1), copolymer PA-19 has nine fluorine atoms in the "O-(R²)-(CF₂)_nX" portion of Formula (1), copolymer PA-20 has five fluorine atoms in the "O-(R²)-(CF₂)_nX" portion of Formula (1), copolymer PA-21 has eight fluorine atoms in the "O-(R²)-(CF₂)_nX" portion of Formula (1), and copolymer PA-22 has six fluorine atoms in the "O-(R²)-(CF₂)_nX" portion of Formula (1).

5. Photothermographic material Samples 24-28 were prepared in the same manner as Sample 1, except that copolymer PA-1 was respectively replaced by copolymers FS-11, FS-12, FS-13, FS-14 and FS-15. Copolymers FS-11, FS-12, FS-13, FS-14 and FS-15 were produced by a solution polymerization method conventionally known in the art. Copolymers FS-11, FS-12, FS-13, FS-14 and FS-15 were obtained as follows:

- FS-11: compound A-17 of FS-1 in Table 1 in col. 19 of Sampei was replaced with compound A-2 in col. 6 of Sampei
- FS-12: compound A-17 of FS-1 in Table 1 in col. 19 of Sampei was replaced with compound A-4 in col. 6 of Sampei
- FS-13: compound A-17 of FS-1 in Table 1 in col. 19 of Sampei was replaced with compound A-5 in col. 6 of Sampei
- FS-14: compound A-17 of FS-1 in Table 1 in col. 19 of Sampei was replaced with compound A-7 in col. 6 of Sampei
- FS-15: compound A-17 of FS-1 in Table 1 in col. 19 of Sampei was replaced with compound A-10 in col. 7 of Sampei

As shown in the Table attached (Sup) and in cols. 6-7 of Sampei, copolymer FS-11 has three fluorine atoms in the "O-(R²)-(CF₂)nX" portion of Formula (1), copolymer FS-12 has three fluorine atoms in the "O-(R²)-(CF₂)nX" portion of Formula (1), copolymer FS-13 has seven fluorine atoms in the "O-(R²)-(CF₂)nX" portion of Formula (1), copolymer FS-14 has five fluorine atoms in the "O-(R²)-(CF₂)nX" portion of Formula (1), and copolymer FS-15 has seven fluorine atoms in the "O-(R²)-(CF₂)nX" portion of Formula (1).

6. Photothermographic material Samples 29-30 were prepared in the same manner as Sample 1, except that copolymer PA-1 was

respectively replaced by copolymers PA-23 and PA-24.

Copolymers PA-23 and PA-24 were obtained as follows:

- PA-23: compound M-5210 of PA-1 on page 52 of the application was replaced with ethyl methacrylate
- PA-24: compound M-5210 of PA-1 on page 52 of the application was replaced with (2-(perfluoro-3-methylbutyl)ethyl methacrylate (structure is $(\text{CF}_3)_2\text{CF}(\text{CF}_2)_2\text{CH}_2\text{CH}_2\text{OCOC}(\text{CH}_3)=\text{CH}_2$)

As shown in the Table attached (Sup), copolymer PA-23 has zero fluorine atoms in the "O-(R²)-(CF₂)_nX" portion of Formula (1) and copolymer PA-24 has eleven fluorine atoms in the "O-(R²)-(CF₂)_nX" portion of Formula (1). Copolymers PA-23 and PA-24 therefore do not fall within the scope of Formula (1).

7. The coating characteristics of the back coat layer of Samples 1 and 19-30 was evaluated as described beginning on page 73 of this application. Transportability of Samples 1 and 19-30 was evaluated as described beginning on page 76 of this application. The transportability evaluation criteria were:

- 0: no transportation trouble for 100 sheets
- 1: 1-9 sheets out of 100 sheets showed transportation trouble
- 2: 10-19 sheets out of 100 sheets showed transportation trouble
- 3: not less than 20 sheets showed transportation trouble

The evaluation results are shown in the attached Table (Sup).

8. As shown in the attached Table (Sup), Samples 1 and 19-23 have a copolymer of Formula (1) produced by the pearl polymerization method with 2-9 fluorine atoms in the "O-(R²)-(CF₂)_nX" portion. Samples 1 and 19-23 therefore fall within the scope of the claimed invention.
9. In contrast to Samples 1 and 19-23, Samples 24-28 have copolymers which were produced by the solution polymerization method that falls outside the scope of the claimed invention. In addition, Samples 29-30 have copolymers with less than 2 or more than 9 fluorine atoms in the "O-(R²)-(CF₂)_nX" portion and therefore fall outside the scope of the claimed Formula (1).
10. The attached Table (Sup) demonstrates that Samples 1 and 19-23 are superior to Samples 24-30. Specifically, Samples 1 and 19-23 had no coating problems since the coated surface was completely flat (5 rating), while Samples 24-30 had obvious phase-separation or a little phase separation (1-3 rating). Furthermore, Samples 1 and 19-23 had no transportation trouble for 100 sheets (0 rating), while

Samples 24-30 had transportation trouble for 1-9, 10-19 or more than 20 sheets.

11. I believe that those skilled in the art would be surprised by the evaluation results shown in the attached Table (Sup). First, it is not obvious that the pearl polymerization method would be superior to the solution polymerization method when used to polymerize the copolymer of claimed Formula (1) (comparison between Samples 1, 19-23 and 24-28). Second, it is not obvious that the pearl polymerization method would produce a superior material when the copolymer has between 2-9 fluorine atoms in the "O-(R²)-(CF₂)_nX" portion of Formula (1) compared to less than 2 or more than 9 fluorine atoms in the "O-(R²)-(CF₂)_nX" portion of Formula (1) (comparison between Samples 1, 19-23 and 29-30).

It is declared by undersigned that all statements made herein of undersigned's own knowledge are true and that all statements made on information and belief are believed to be true; and further that these statements are made with the knowledge that willful false statements and the like so made are punishable by fine or imprisonment, or both, under section 1001 of Title 18 of the U.S. Code; and that such willful false statements may

jeopardize the validity of this Application or any patent issuing thereon.

Akihisa Nakajima
Akihisa Nakajima

Dated: This 16th day of December, 2005.

Attachment: Table (Sup)

Table (Sup)

Sample No.	Polymer used	Polymerization method	Number of F Atoms in the Monomer	Coating Characteristics of the BC layer	Trans-Portability	Remarks
1	PA-1	Pearl	4	5	0	Inv.
19	PA-18	Pearl	3	5	0	Inv.
20	PA-19	Pearl	9	5	0	Inv.
21	PA-20	Pearl	5	5	0	Inv.
22	PA-21	Pearl	8	5	0	Inv.
23	PA-22	Pearl	6	5	0	Inv.
24	FS-11	Solution	3	2	1	Comp.
25	FS-12	Solution	3	3	3	Comp.
26	FS-13	Solution	7	2	1	Comp.
27	FS-14	Solution	5	3	2	Comp.
28	FS-15	Solution	7	3	1	Comp.
29	PA-23	Pearl	0	1	2	Comp.
30	PA-24	Pearl	11	3	2	Comp.